

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NM-41-AD; Amendment 39-13178; AD 2003-11-19]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 727-100 and 727-200 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 727-100 and 727-200 series airplanes, that requires, under certain conditions, replacement of the installed autopilot pitch control computer with a modified computer, testing of the modified system, and revision of the Airplane Flight Manual (AFM). The actions specified by this AD are intended to prevent undesirable and potentially dangerous pitch oscillations during coupled instrument landing system (ILS) approaches. This AD is intended to address the identified unsafe condition.

DATES: Effective July 16, 2003.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of July 16, 2003.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, PO Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Thanh Truong, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 917-6486; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to certain Boeing Model 727-100 and 727-200 series airplanes was published in the Federal Register on

September 10, 2001 (66 FR 46968). That action proposed to require replacement of the installed autopilot pitch control computer with a modified computer, testing of the modified system, and revision of the Airplane Flight Manual (AFM).

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Support for the Proposed AD

One operator reports that the actions specified in the proposed AD have been incorporated on all of its airplanes.

Request To Withdraw AD

One operator asserts that accomplishment of the actions specified in the proposed AD would not eliminate the identified unsafe condition, and suggests that pilot training and procedures would eliminate unstable category II approaches by autopilot disconnect. The FAA infers that the commenter is requesting withdrawal of the proposed AD.

The FAA does not agree. The unsafe condition is related to the accident described in the proposed AD involving a Model 727 series airplane during a coupled instrument landing system (ILS) category II approach. The circumstances surrounding that accident led in part to the issuance of this AD. The divergent pitch oscillations of the airplane resulted from an improper autopilot desensitization rate and contributed to the accident. This AD addresses the improper autopilot desensitization rate. The AFM revisions required by this AD provide data to the flightcrew regarding certain limitations, such as autopilot disconnect, inherent in the design of Sperry SP-50 and SP-150 autopilots. Observing these limitations will help the flightcrew take the appropriate action necessary for a successful landing or go-around.

Request To Delay AD Issuance Pending Further Study

One operator requests that issuance of the AD be delayed until further studies, as described in the proposed AD, can be completed. The proposed AD describes additional studies in process that are intended to develop appropriate limits for flap settings and airspeeds and to investigate other aspects such as winds and glideslope angles as possible contributors to the unsafe condition. The commenter requests that the studies be completed before the proposed AFM revisions and modifications are mandated.

The FAA does not agree. If the results of the studies ultimately suggest the need for additional intervention, or if additional data are presented that would justify revising any requirements of this AD, the FAA may consider further rulemaking on this issue. In consideration of the amount of time that has already elapsed since issuance of the original notice of proposed rulemaking, the FAA has determined that further delay of this final rule action is not appropriate.

Request To Remove Landing Flap Limitation

Two operators request removal of the landing flap limitation specified in paragraph (d) of the proposed AD. To justify the request, the commenters state that the difference in the approach speeds between the 30-degree and 40-degree landing flap configurations is only 5 knots, and the proposed limitation would provide only minimal improvement in glideslope beam tracking.

The FAA is aware of the small difference in approach speeds and agrees with the request to remove the landing flap limitation. In the preamble of the proposed AD, the FAA indicated that additional studies were being conducted to develop applicable operating limitations that would address approach flap settings. The FAA has since obtained additional analysis indicating that the new gain schedule applies to both 30-degree and 40-degree landing flap configurations. Therefore, paragraph (d) of the proposed AD has been removed from the final rule, and subsequent paragraphs have been reidentified.

Request To Revise Applicability: Exclude Certain Airplanes

Two operators request that the applicability of the proposed AD be revised to exclude airplanes equipped with single-pitch channels that use radio altimeter-based glideslope gain programming. One commenter reports that most of the affected airplanes in its fleet have been modified to incorporate a dual-pitch computer configuration in accordance with Sperry Service Bulletin 21-1132-121, dated November 23, 1982 (for SP-50 autopilots); or 21-1132-122, dated February 7, 1983 (for SP-150 autopilots). (Those service bulletins were cited in the proposed AD as the appropriate source of service information for the one-time test of the modified autopilot.) This commenter adds that compliance with paragraphs (b) and (c) of the proposed AD would be impossible for those airplanes because the proposed AD and Boeing service bulletin are targeted for airplanes with single-channel autopilot systems. In addition, this commenter states that paragraph (a) of the proposed AD imposes an undesirable restriction on modified airplanes by preventing them from flying category II and category III approaches into airports with inoperative middle markers. This commenter asserts that this restriction is unnecessary for the modified airplanes because their autopilot configurations use radio altimeter glideslope gain programming (radio altitude-based desensitization), and are therefore not susceptible to the airworthiness concern associated with inoperative middle markers addressed by the proposed AD. The commenter recommends that the applicability of the proposed AD be revised to exclude those airplanes.

The other commenter notes that affected airplanes with single-pitch channels on which the actions specified in Boeing Service Bulletin 727-22-0052 have been incorporated do not use the middle marker in gain programming. The commenter concludes that these airplanes should not be prohibited from category II approaches if no middle marker is available.

The FAA agrees. In this case, where the autopilot has already been modified with an FAA-approved design that does not normally use time-based gain programming, the FAA agrees that excluding airplanes equipped with radio altimeter-based autopilots from the applicability of the AD will not compromise the safety of the fleet. The applicability of this AD has been revised accordingly.

Request To Revise Applicability: Clarify Intent

Several commenters request that the applicability of the proposed AD be revised to clarify that the requirements apply only if operators desire to maintain the capability of the autopilot coupled ILS approach. One operator, conducting "Cat I approach only," requests exclusion from the applicability of the AD.

The FAA partially agrees. The intent of the AD is to "prevent dangerous pitch oscillations during coupled (ILS) approaches"; affected operators could comply with the AD simply by never conducting coupled approaches. Although the cited wording does not directly address category I coupled approaches, analysis has shown that, if the unmodified autopilot is used, potentially unsafe pitch oscillation can begin at 400 feet above ground level (AGL), which is well above the typical decision height for category I approaches of 200 feet AGL. As a result, category I and category II coupled approaches would be prohibited for airplanes that have unmodified autopilot gains. However, manually flown approaches using autopilot guidance (glideslope and localizer needle deviations) or

flight director guidance would be permitted. Because the middle marker signal is typically received at 200 feet AGL and because during typical category I coupled approaches the pilot disconnects the autopilot at 200 feet AGL (compared to 100 feet AGL, which is typical for category II approaches), no AFM restriction for category I approaches is discussed in the AD even though modification of the autopilot is required if it is used for any coupled approach. The AFM language has been further revised in paragraph (a) of this final rule to clarify that the autopilot must be modified if any coupled ILS approach is conducted. To more clearly identify those airplanes affected by this requirement, new paragraph (e) has been added to the final rule to require modification of the autopilot unit only if autopilot coupled ILS approaches are to be used with that airplane. Subsequent paragraphs that appeared in the proposed AD have been reidentified in the final rule.

Request To Revise Applicability: Add Certain Airplanes

The applicability of the proposed AD includes only those Model 727-100 and -200 series airplanes that are listed in Boeing Alert Service Bulletin 727-22A0093, dated December 20, 2000. One operator reports that some of its airplanes are not listed in the service bulletin but are equipped with SP-50 and/or SP-150 autopilots. The FAA infers that the commenter is requesting that the applicability of the proposed AD be expanded to include any Model 727-100 and -200 series airplane equipped with a subject autopilot.

The FAA does not agree. Not all Model 727-100 or -200 series airplanes with the subject autopilots are susceptible to the unsafe condition identified by this AD. For example, airplanes delivered after November 1977 are not susceptible because they use radio altimeter gain scheduling for the SP-150 autopilots instead of the time-based gain scheduling discussed in the proposed AD. No change to the applicability of the final rule is necessary in this regard.

Request for Clarification of Test

Two commenters request clarification of the one-time test specified by paragraph (c) of the proposed AD. The commenters state that this requirement, as written, is either redundant or subject to misinterpretation. The Sperry service bulletins, described previously, were cited in the proposed AD: in paragraph (c) for the one-time test procedures and in paragraph (d) for the autopilot modification procedures. (Paragraph (d) has since been removed from the final rule, as discussed previously.) The proposed AD specified that the test be done concurrently with the modification, before reinstallation of the modified autopilot, and before further flight. The commenters suggest that the wording of the proposed AD could cause operators to perform unnecessary rework. The commenters suggest that the proposed test requirement be a one-time test of the autopilot unit, because "the timing in relation to the modification is immaterial."

One operator requests that the proposed test requirement be revised to distinguish the requirements associated with the autopilot from those associated with the airplane. This commenter suggests that paragraph (c) of the proposed AD be revised to read as follows: "Following any * * * modification, perform a one-time test procedure of the modified autopilot." The wording in the proposed AD suggests that two tests are to be done at the same time. The commenter requests this change to clarify the requirements and to avoid unnecessary rework.

The FAA partially agrees. The requirements regarding the autopilot test may be redundant because the Sperry service bulletins already specify testing the unit using test information provided in those service bulletins. However, those same service bulletins note that, "Test information given in this bulletin shall be disregarded when revised Component Maintenance Manuals become available." This note may be misinterpreted to mean the test is not required, so the FAA finds it necessary to clarify the test requirement. The FAA has learned that many operators have already accomplished the modifications and post-modification testing specified in the proposed AD. Therefore, paragraph (c) of the final rule has been revised to clarify this requirement.

Request To Allow Alternative Testing Methods

One operator asserts that a variety of effective methods have been used to verify the new time constants described in the Sperry service bulletins for the test. The commenter suggests that the methods of compliance for paragraph (c) of the proposed AD be broadened to allow the option of "other valid methods." The commenter reports that some of its autopilot units were modified and tested in-house in accordance with established test procedures described in the component maintenance manual. The commenter adds that other autopilot units were purchased already modified in accordance with the procedures described in the Sperry service bulletins. The commenter suggests this change to avoid unnecessary retesting of autopilot units for which the use of the new time constants has already been confirmed.

The FAA agrees with the request for the reasons stated by the commenter. Paragraph (c) of the final rule has been further revised to provide operators this testing option.

Request To Revise Requirements for Spare Parts

One operator requests that paragraph (e) of the proposed AD be either removed from the AD or revised to extend the time allowed for spares modifications and AFM revisions. This commenter asserts that a minimum of 6 months will be necessary to modify spare parts and revise the AFM.

The FAA partially agrees. The FAA finds that the AFM limitations imposed by this AD will sufficiently ensure safety of an affected airplane until spare parts can be acquired and modified; therefore, allowing additional time to modify spare parts will not compromise safety. However, the FAA does not agree that it is necessary to extend the time by which the AFM revisions must be completed. The basic intent of an AFM revision may be accomplished by inserting a copy of the AD into the AFM; operators should be able to complete this action in a short time. Paragraph (f) of the final rule (paragraph (e) in the proposed AD) has been revised to extend the time by which the installation of unmodified spare parts will be prohibited.

Request To Revise Cost Estimate

Two operators request a revision of the proposed cost estimates. One operator notes that the proposed AD does not address the costs associated with obtaining a master change from Boeing to eliminate the need for a middle marker to begin second-stage gain programming. One operator notes that the proposed AD does not address the costs associated with airplane diversions that would result if category II approaches are prohibited at airports without middle markers.

The FAA partially agrees. Since category II approaches are prohibited at airports that do not have middle markers, an operator may elect to fly category I or manual approaches, divert to another airport, or modify the autopilot to operate with radio-altimeter-based gain schedule with control law that does not depend on the middle marker signal. However, the middle marker signal has always been and remains a necessary part of the autopilot that is programmed with a time-based gain schedule. This AD in part is intended to ensure the safe operation of an airplane—within the original autopilot design constraints associated with use of middle markers—by way of operational requirements. No change to the final rule is necessary in this regard.

Request To Revise Parts Cost Estimate

One operator asserts that the parts cost to modify each SP-150 autopilot is \$641—not \$168 as stated in the proposed AD.

According to updated information provided by Boeing to the FAA, the parts cost is \$522 for the SP-50 autopilot and \$620 for the SP-150 autopilot. The Cost Impact section of the final rule has been revised accordingly.

Request To Reactivate Middle Markers

The proposed AFM revision requirement would prohibit a category II autopilot coupled ILS approach when the middle marker is inoperative. One operator suggests that the FAA reactivate middle markers as an alternative to the AFM revision requirement. The commenter claims that the FAA has deactivated ground-based middle marker beacons, and some operators have maintained their airborne marker beacon systems.

The FAA does not agree with the request. The use of the middle marker is an original design feature of the subject autopilots. If the middle marker is inoperative or nonexistent, these autopilots—which are time-based—will not work properly. The FAA has approved autopilots that do not rely on marker beacons. Furthermore, the FAA currently is not considering reactivating the marker beacon system due to the International Civil Aviation Organization's September 1984 revision to Annex 10, which expanded the use of ILS/distance measuring equipment (DME) as a substitute for all or part of the marker beacon system. No change to the final rule is necessary in this regard.

Request To Revise Cause of Unsafe Condition

Boeing requests a change to the second sentence of the Discussion section of the proposed AD. Specifically, this commenter requests that the revised sentence read as follows: "The approach was normal until the airplane passed through 200 feet above ground level, where the airplane, responding to a [glideslope] beam anomaly, started a pitch oscillation that continued to increase." The FAA infers that the commenter is suggesting that the glideslope beam anomaly contributes to the pitch oscillation problem.

The FAA does not agree with the request, but agrees that the glideslope beam anomaly can contribute to the pitch oscillation problem, and may have been a contributing factor to the accident described in the proposed AD. However, there were no indications that a glideslope anomaly contributed directly to the accident. Numerous runway 14R records dating from a time prior to the accident indicate no glideslope deviations or other ILS-related problems. The results of normal and special flight checks of the ILS were also within normal limits. Furthermore, results of simulator testing using typical glideslope profiles have indicated that the autopilot with the 150-second desensitization period responded to the disturbances (induced turbulence and vertical wind gusts) by commanding oscillatory pitch changes or changes in pitch that are oscillatory in nature, which increased over time and resulted in significant deviations from the desired flight path. No change to the final rule is necessary in this regard.

Request To Expand AFM Requirements

Boeing suggests that the proposed AFM revisions include additional indicators for approach performance, such as flightcrew monitoring for allowable ILS deviations and horizontal stabilizer activity that indicate an out-of-trim nonstabilized approach. The commenter provides no justification for this request.

In consideration of the amount of time that has already elapsed since the issuance of the original notice, the FAA has determined that further delay of this final rule is not appropriate. However, if additional data are presented that would justify revising the requirements of this AD, the FAA may consider further rulemaking to require AFM revisions that would include the specific requested performance indicators. No change to the final rule is necessary in this regard.

Request To Revise Special Flight Permit Specifications

Boeing requests that, instead of issuing a special flight permit to allow operation of the airplane to a location where the requirements of the AD can be accomplished, the FAA impose operational restrictions on autopilot coupled ILS approaches for that flight.

The FAA partially concurs. The FAA finds that such operational restrictions are acceptable but not necessary in this case because another method is available to operate the airplane; i.e., the airplane can be manually operated during approaches. No change to the final rule regarding this issue is necessary.

Request To Clarify Airplanes Affected by Certain Requirements

One operator requests that paragraph (e) ("Spare Parts") of the proposed AD be revised to more clearly identify those airplanes that would be affected by that proposed requirement. The commenter suggests that the term "any airplane," as it is used in that paragraph, be clarified to explain that not all Model 727-100 and -200 series airplanes are subject to this requirement.

The FAA agrees that not all existing Model 727-100 and -200 series airplanes are subject to the identified unsafe condition; however, the FAA does not agree that revision of this paragraph is necessary. As stated earlier, the applicability of the final rule has been revised to exclude airplanes equipped with radio altimeter-based autopilots. Any qualifier (including "any" and "all") used to identify airplanes subject to a particular requirement of an AD is relative to the overall applicability of the AD.

Request To Revise Description of the Unsafe Condition

Boeing requests a revision of one sentence in the third paragraph of the Discussion section of the proposed AD. That sentence reads as follows:

Because glideslope deviations close to the runway require smaller pitch corrections than those required far from the runway, the autopilot sensitivity has to be reduced as the airplane nears the runway.

The commenter requests that the sentence be replaced with the following:

The autopilot sensitivity has to be reduced as the airplane nears the runway because the glideslope beam converges as the distance to the glideslope transmitter is decreased (and the same vertical displacement from the beam centerline results in a larger glideslope deviation signal).

This commenter provides no justification for this requested change.

The FAA does not agree with this request. Although the requested language is technically correct, the FAA finds that the simpler explanation in the Discussion section of the proposed AD is adequate to explain the conditions that require autopilot sensitivity changes. No change to the final rule is necessary in this regard.

Request To Revise Description of Accident Cause

Boeing requests a change to one sentence of the final paragraph of the Discussion section of the proposed AD. That sentence reads as follows:

Based on the NTSB's studies and FAA findings, the improper desensitization schedule is considered a contributing factor in the destabilized approach of the accident flight and in the reported pitch event that occurred in 1997.

This commenter requests that the word "improper" be changed to "150-second."

The FAA partially concurs. The requested wording is specific; however, the Discussion section is not repeated in a final rule, so no change is necessary in this regard.

Explanation of Additional Changes to AFM

Some minor additional changes have been made to paragraph (a) of this final rule. First, the prohibition of coupled ILS approaches, specified in the proposed AD only for "inoperative" middle markers, has been changed in this final rule to "inoperative or nonexistent" middle markers. Second, the second sentence of the revised AFM language has been changed from "* * * during Cat II autopilot coupled ILS approaches" to "* * * during coupled ILS CAT II approaches."

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 750 airplanes of the affected design in the worldwide fleet. The FAA estimates that 162 airplanes of U.S. registry will be affected by this AD.

It will take approximately 1 work hour per airplane to revise the AFM, at an average labor rate of \$60 per work hour. Based on this figure, the cost impact of the required AFM revisions on U.S. operators is estimated to be \$9,720, or \$60 per airplane.

It will take approximately 1 work hour per airplane to modify and test the SP-50 autopilot and 2 work hours per airplane to modify and test the SP-150 autopilot. Required parts will cost approximately \$522 for the SP-50 autopilot and \$620 for the SP-150 autopilot. Based on these figures, the cost impact of the modification and test is estimated to be \$582 (SP-50) or \$740 (SP-150) per airplane.

The overall cost to the affected fleet could range from \$104,004 to \$301,320.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2003-11-19 Boeing: Amendment 39-13178. Docket 2001-NM-41-AD.

Applicability: Model 727-100 and 727-200 series airplanes, certificated in any category, as listed in Boeing Alert Service Bulletin 727-22A0093, dated December 20, 2000; excluding airplanes equipped with radio altimeter-based autopilots.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (g) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent undesirable and potentially dangerous pitch oscillations during coupled instrument landing system (ILS) approaches, accomplish the following:

Revision of Airplane Flight Manual (AFM)

(a) For any airplane on which autopilot coupled ILS approaches with time-based glideslope gain programming are used: Within 6 months after the effective date of this AD, revise the Limitations Section, under AUTOPILOT/FLIGHT DIRECTOR SYSTEM, of the FAA-approved AFM by adding the following (this may be accomplished by inserting a copy of this AD into the AFM):

"Coupled ILS approaches are prohibited unless the autopilot has been modified in accordance with AD 2003-11-19, amendment 39-13178.

CAT II autopilot coupled ILS approach shall not be performed if the Middle Marker (ground or airborne system) is inoperative or nonexistent.

Disconnect the autopilot at, or prior to, 80 ft. (above the runway's touchdown-zone elevation) during coupled ILS CAT II approaches."

Modification and Testing of Autopilot

(b) Except as provided by paragraph (d) of this AD: Within 18 months after the effective date of this AD, modify the existing SP-50 or SP-150 single-channel autopilot in accordance with Boeing Alert Service Bulletin 727-22A0093, dated December 20, 2000.

(c) Except as provided by paragraphs (d) and (e) of this AD: After modification of the autopilot unit required by paragraph (b) of this AD, and before reinstallation of the modified autopilot and further flight, perform a one-time test procedure of the modified autopilot, in accordance with Sperry Service Bulletin 21-1132-121, dated November 23, 1982 (for SP-50 autopilots); or 21-1132-122, dated February 7, 1983 (for SP-150 autopilots); as applicable. Testing done before the effective date of this AD in accordance with Component Maintenance Manual (CMM) test procedures is also acceptable, provided that the procedures implement all the CMM changes and test steps described in the applicable Sperry service bulletin. For autopilot units manufactured with the actions of the applicable Sperry service bulletin already incorporated, testing is not required.

Exempt Conditions

(d) For airplanes with autopilots already modified prior to the effective date of this AD in accordance with Sperry Service Bulletin 21-1132-121 or 21-1132-122: Only the AFM limitation specified in paragraph (a) of this AD is required.

(e) For any airplane on which coupled approaches are not used: Only the AFM limitation specified in paragraph (a) of this AD is required, provided a flight deck placard is installed that states, "Autopilot coupled ILS approach prohibited" or equivalent, in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically reference this AD. However, for any airplane placed into service that uses autopilot coupled ILS approaches, the requirements of this AD must be accomplished before the first flight when a coupled approach is used.

Part Installation

(f) As of 6 months after the effective date of this AD, no person may install on any airplane an autopilot pitch control computer unless it has been modified in accordance with this AD.

Alternative Methods of Compliance

(g) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle ACO, FAA. Operators shall submit their requests through an appropriate FAA Principal Operations or Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Special Flight Permits

(h) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(i) Unless otherwise specified in this AD, the actions must be done in accordance with Boeing Alert Service Bulletin 727-22A0093, dated December 20, 2000; Sperry Service Bulletin 21-1132-121, dated November 23, 1982; and Sperry Service Bulletin 21-1132-122, dated February 7, 1983; as

applicable. Only the first page of Sperry Service Bulletins 21-1132-121 and 21-1132-122 contain the document number; no other page of the documents contain this information. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, PO Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

Effective Date

(j) This amendment becomes effective on July 16, 2003.

Issued in Renton, Washington, on May 28, 2003.

Vi L. Lipski,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 03-13976 Filed 6-10-03; 8:45 am]

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